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10/032,648	10/23/2001	Takeo Kanade	010329	6170
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/032,648

Applicant(s)

KANADE ET AL.

Examiner

CHIKAODILI E. ANYIKIRE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2001.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-36 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 23 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-850)
Paper No(s)/Mail Date See Continuation Sheet
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

Continuation of Attachment(s) 3. Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :20011023, 20021107, 20031027, 20050126, 20050516.

DETAILED ACTION

1. This application is responsive to application number (10032648) filed on October 23, 2001. Claims 1-36 are pending and have been examined.

Information Disclosure Statement

2. Acknowledgement is made of applicant's information disclosure statement filed on October 23, 2001, November 07, 2002, October 27, 2003, January 26, 2005 and May 16, 2005.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1-6, 11, 19, 23-27, and 29-32 rejected under 35 U.S.C. 103(a) as being unpatentable over Gutta et al (US 5,956,081) in view of DiMatteo (US 4,396,945).

As per **claim 1**, Gutta et al disclose a system for obtaining video of a moving fixation point within a scene, comprising:

a control unit (Fig 3b, 110);

a plurality of non-moving image capturing devices positioned around the scene, wherein the scene is within a field of view of each image capturing device (Fig 3a, C1-C4; paragraph [0016] Ln 2-4);

However, Gutta et al does not explicitly teach a plurality of image generators, wherein each image generator is in communication with one of the image capturing devices, and wherein a first of the image generators is responsive to a command from the control unit; and

a surround-view image sequence generator in communication with each of the image generators and responsive to the command from the control unit for generating a surround-view video sequence of the fixation point based on output from certain of the image generators.

In the same field of endeavor, DiMatteo et al teach a plurality of image generators (Fig 2, elements 19 and 20), wherein each image generator is in communication with one of the image capturing devices (Col 2 Ln 65—67), and wherein a first of the image generators is responsive to a command from the control unit (Col 2 Ln 67 – Col 3 Ln 5); and

a surround-view image sequence generator (Fig 2, 21) in communication with each of the image generators and responsive to the command from the control unit for generating a surround-view video sequence of the fixation point based on output from certain of the image generators (Col 2 Ln 67 – Col 3 Ln 5).

Therefore, it would have been obvious for one having ordinary skill in the art at the time of the invention to modify the invention of Gutta in view of DiMatteo et al. The high optical magnification optimizes the angle determining precision of the system (Col 3 Ln 10-12)

As per **claim 2**, Gutta et al disclose the system of claim 1, further comprising an inter-image capturing device calibration database in communication with the surround-view image sequence generator (paragraph [0019]; the prior art discloses the relationship between the image capturing devices when dealing with images in a juxtaposition).

As per **claim 3**, Gutta et al disclose the system of claim 1, wherein the first image generator is responsive to a viewing angle command and a zoom command from the control unit (paragraph [0050] Ln 5-6).

As per **claim 4**, Gutta et al disclose the system of claim 1.

However, Gutta et al does not explicitly teach wherein the surround-view image sequence generator is for generating the surround-view video sequence of the fixation point within the scene by outputting an image from certain of the image generators in sequence according to the position of the image capturing devices around the scene.

In the same field of endeavor, DiMatteo et al teach wherein the surround-view image sequence generator (Fig 2, 21) is for generating the surround-view video sequence of the fixation point within the scene by outputting an image from certain of

the image generators in sequence according to the position of the image capturing devices around the scene (Col 3 Ln 1-5).

Therefore, it would have been obvious for one having ordinary skill in the art at the time of the invention to modify the invention of Gutta in view of DiMatteo et al. The high optical magnification optimizes the angle determining precision of the system (Col 3 Ln 10-12)

As per **claim 5**, The system of claim 4, wherein the surround-view image sequence generator includes:

a mapping module for outputting a command to each of the image generators other than the first image generator based on the command from the control unit; and

an image sequencing module in communication with each of the image generators for outputting the image from certain of the image generators in sequence according to the position of the image generators around the scene.

As per **claim 6**, Gutta et al disclose the system of claim 4, further comprising an inter-image capturing device calibration database in communication with the mapping module (paragraph [0019]; the prior art discloses the relationship between the image capturing devices when dealing with images in a juxtaposition).

As per **claim 11**, Gutta et al disclose the system of claim 1, wherein the image capturing devices are periodically positioned around the scene (paragraph [0016] Ln 2-4; the prior art shows the cameras evenly spaced in four corners).

As per **claim 12**, Gutta et al disclose the system of claim 1.

However, Gutta et al does not explicitly teach a system further comprising:

a moving camera having a field of view within the scene; and

an additional image generator in communication with the moving camera and in communication with the surround-view image sequence generator,

wherein the additional image generator is responsive to a second command based on the command from the control unit.

In the same field of endeavor, DiMatteo et al teach a system further comprising:

a moving camera (Fig 2, element 17) having a field of view within the scene (Col 3 Ln 6-8; the prior art discloses that the cameras are servo controlled to center the field of view); and

an additional image generator (Fig 2, element 19) in communication with the moving camera and in communication with the surround-view image sequence generator (Fig 2, element 21; Col 2 Ln 67 – Col 3 Ln 5),

wherein the additional image generator is responsive to a second command based on the command from the control unit (Col 2 Ln 67 – Col 3 Ln 5).

Therefore, it would have been obvious for one having ordinary skill in the art at the time of the invention to modify the invention of Gutta in view of DiMatteo et al. The

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high optical magnification optimizes the angle determining precision of the system (Col 3 Ln 10-12).

As per **claim 13**, Gutta et al disclose the system of claim 12, wherein the moving camera includes a pan/tilt camera (paragraph [0050] Ln 5-6).

As per **claim 14**, Gutta et al disclose the system of claim 1.

However, Gutta et al does not explicitly teach the system further comprising a computer vision module in communication with the control unit.

In the same field of endeavor, DiMatteo et al teach the system further comprising a computer vision module (Fig 2, element 21) in communication with the control unit (Col 3 Ln 1-5; the prior art discloses that the computer, element 21, is able to calculate position and other information from the digitized video information that is provided to the computer).

Therefore, it would have been obvious for one having ordinary skill in the art at the time of the invention to modify the invention of Gutta in view of DiMatteo et al. The high optical magnification optimizes the angle determining precision of the system (Col 3 Ln 10-12)

As per **claim 15**, Gutta et al disclose the system of claim 1.

However, Gutta et al does not explicitly teach the system, wherein the computer vision module is further for selecting a second image generator to be responsive to the command from the control unit.

In the same field of endeavor, DiMatteo et al teach the system, wherein the computer vision module (Fig 2, element 21) is further for selecting a second image generator to be responsive to the command from the control unit (Col 2 Ln 67 - Col 3 Ln 5; the prior art discloses that the computer, element 21, is able to calculate position and other information from the digitized video information that is provided to the computer).

Therefore, it would have been obvious for one having ordinary skill in the art at the time of the invention to modify the invention of Gutta in view of DiMatteo et al. The high optical magnification optimizes the angle determining precision of the system (Col 3 Ln 10-12).

As per **claim 16**, DiMatteo et al disclose the system of claim 1, further comprising a second control unit (Fig 2, element 21; Col 3 Ln 1-5; the prior art discloses element 21 as machine capable of sending commands to multiple machines and can serve in different capacities as second control), wherein one of the image generators (Fig 2, elements 19 and 20) is responsive to a command from the second control unit (Col 2 Ln 67 – Col 3 Ln 5), and

wherein the surround-view image sequence generator (Fig 2, 21) is further for generating a second surround-view video sequence of a second fixation point within the scene based on output from certain of the image generators and the command from the second control unit (Col 2 Ln 67- Col 3 Ln 5).

As per **claim 17**, DiMatteo et al discloses the system of claim 16, wherein the first image generator (Fig 2, element 19) is responsive to the command from the second control unit (Fig 2, element 21; Col 3 Ln 1-5).

Regarding **claim 18**, arguments analogous to those presented for claim 1 and 3-5 are applicable for claim 18.

Regarding **claim 19**, arguments analogous to those presented for claim 6 are applicable for claim 19.

Regarding **claim 23**, arguments analogous to those presented for claims 3, 5, and 16 are applicable for claim 23.

Regarding **claim 24**, arguments analogous to those presented for claim 3 are applicable for claim 24.

Regarding **claim 25**, arguments analogous to those presented for claims 5 and 12 are applicable for claim 25.

Regarding **claim 26**, arguments analogous to those presented for claim 13 are applicable for claim 26.

Regarding **claim 27**, arguments analogous to those presented for claims 1 and 18 are applicable for claim 27.

Regarding **claim 29**, arguments analogous to those presented for claim 11 are applicable for claim 29.

Regarding **claim 30**, arguments analogous to those presented for claim 3 are applicable for claim 20.

Regarding **claim 31**, arguments analogous to those presented for claims 3, 4, and 12 are applicable for claim 31.

Regarding **claim 32**, arguments analogous to those presented for claim 13 are applicable for claim 32.

6. Claims 7-10, 20-22, 28, and 33-36 rejected under 35 U.S.C. 103(a) as being unpatentable over Gutta et al (US 5,956,081) in view of DiMatteo (US 4,396,945) in further view of Foote et al (US 7,015,954).

As per **claim 7**, the modified invention of Gutta et al discloses the system of claim 1.

However, the modified invention of Gutta et al does not explicitly teach wherein each of the image capturing devices includes a camera bank including a plurality of non-moving cameras.

In the same field of endeavor, Foote et al disclose teach wherein each of the image capturing devices includes a camera bank including a plurality of non-moving cameras (Fig 1b, Col 5 Ln 64 - 66).

Therefore, it would have been obvious for one having ordinary skill in the art at the time of the invention to modify the modified invention of Gutta et al in view of Foote

et al. The advantage is that the camera options such as zoom and tilt can be effectively duplicated with an array of fixed cameras (Col 6 Ln 37-43).

As per **claim 8**, Foote et al disclose the system of claim 7, wherein at least one of the image generators is in communication with an intra-bank calibration database (Col 6 Ln 19-43; the prior art discloses the images being taken coming from individual cameras which serve as the database for the images taken by that camera).

As per **claim 9**, the modified invention of Gutta et al discloses the system of claim 1.

However, the modified invention of Gutta et al does not explicitly teach wherein each of the image capturing devices includes a non-moving panoramic wide field of view camera.

In the same field of endeavor, Foote et al teach wherein each of the image capturing devices includes a non-moving panoramic wide field of view camera (Fig 2A, Col 6 Ln 19-30).

Therefore, it would have been obvious for one having ordinary skill in the art at the time of the invention to modify the modified invention of Gutta et al in view of Foote et al. The advantage is that the camera options such as zoom and tilt can be effectively duplicated with an array of fixed cameras (Col 6 Ln 37-43).

As per **claim 10**, the modified invention of Gutta et al discloses the system of claim 1.

However, the modified invention of Gutta et al does not explicitly teach wherein each of the image capturing devices is selected from the group consisting of a non-moving panoramic wide field of view camera and a camera bank having a plurality of non-moving cameras.

In the same field of endeavor, Gutta et al teach wherein each of the image capturing devices is selected from the group consisting of a non-moving panoramic wide field of view camera and a camera bank having a plurality of non-moving cameras (Col 6 Ln 31-43).

Therefore, it would have been obvious for one having ordinary skill in the art at the time of the invention to modify the modified invention of Gutta et al in view of Foote et al. The advantage is that the camera options such as zoom and tilt can be effectively duplicated with an array of fixed cameras (Col 6 Ln 37-43).

Regarding **claim 20**, arguments analogous to those presented for claim 10 are applicable for claim 20.

Regarding **claim 21**, arguments analogous to those presented for claim 11 are applicable for claim 21.

Regarding **claim 22**, arguments analogous to those presented for claim 14 are applicable for claim 22.

Regarding **claim 28**, arguments analogous to those presented for claim 10 are applicable for claim 28.

Regarding **claim 33**, argument analogous to those presented for claims 1 and 3 are applicable for claim 33.

Foot et al teach a virtual camera (Col 6 Ln 31-43).

Therefore, it would have been obvious for one having ordinary skill in the art at the time of the invention to modify the modified invention of Gutta et al in view of Foote et al. The advantage is that the camera options such as zoom and tilt can be effectively duplicated with an array of fixed cameras (Col 6 Ln 37-43).

Regarding **claim 34**, arguments analogous to those presented for claim 5 are applicable for claim 34.

Regarding **claim 35**, arguments analogous to those presented for claim 23 and 33 are applicable for claim 35.

Regarding **claim 36**, arguments analogous to those presented for claim 5 are applicable for claim 36 (the prior art describes a system that is operating continuously and therefore take multiple images to produce multiple scenes based on the position given to the system).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHIKAODILI E. ANYIKIRE whose telephone number is

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(571)270-1445. The examiner can normally be reached on Monday to Friday, 7:30 am to 5 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272 - 7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Marsha D. Banks-Harold/
Supervisory Patent Examiner, Art Unit 2621

/CEA/